



**Faculty of Computer Science and Information Technology**

## **EMPLOYEE AND COMPANY ASSETS MONITORING SYSTEM**

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Bachelor of Computer Science with Honours (Information System)  
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Aina Faizah binti Mohmad

A thesis submitted

In fulfillment of the requirements for the degree of Bachelor of Computer Science with  
Honours (Information System)

Faculty of Computer Science and Information Technology

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# **ABSTRACT**

In today's world, smartphone is an important device in daily life. The aim of this system is to monitor the employee activities and productivity in the company compound and to improve the growth of the company's performance. The system will be built on an Android operating system and will be used in an android smartphone. This system can monitor the employee and company assets in the company compound. By using this system, the employer or top-level management can easily monitor and track their employee.

## ***ABSTRAK***

*Di dunia hari ini, telefon pintar adalah peranti penting dalam kehidupan seharian. Matlamat sistem ini adalah untuk memantau aktiviti pekerja dan produktiviti dalam kompaun syarikat dan untuk meningkatkan pertumbuhan prestasi syarikat. Sistem ini akan dibina di atas sistem operasi Android dan akan digunakan dalam telefon pintar android. Sistem ini boleh mengawasi aset pekerja dan syarikat di kompaun syarikat. Dengan menggunakan sistem ini, majikan atau pengurusan atasan dapat dengan mudah memantau dan menjejaki pekerja mereka.*

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# **CHAPTER 1**

## **INTRODUCTION**

### **1.1 Introduction**

The employee monitoring system is a system that monitors the performance of employees of a company. Employees are the backbone of the company that their management plays a significant role in deciding the success of the company. Hence, it is essential to monitor their performance to maximize their productivity. This proposed system will be built to collect and analyze information on employees' performance and productivity during work hours. By monitoring and tracking the employees, it is possible to determine the performance of employees and indirectly can improve and increase the performance or profits for the company. It is because an employee's career development relies on their work performance while company development depends on their employees' work performance.

A tracking or monitoring system is a system that enables the user to keep track of the employees' current location or tasks. The needs for employees and assets monitoring systems to assist in the management, monitor, searching, and tracking becomes paramount as it is well known that the issues when dealing with the human being are their willingness to follow all the rules set by the organization. Due to this issue, some company is unable to keep track of all their employees and assets. Hence, it is hard to keep track of the productivity of the employees.

The focus of this project is to design and develop a system that will monitor and keep track of the movement of employees and assets of a company. This system will be able to locate the whereabouts of the employee and the last seen location of the company assets in the company compound. It can capture the check-in and check-out time of the employees and assets as they enter the company compound.

## **1.2 Problem Statement**

Nowadays, some company always faced with the problems of underperforming employees. A growing number of employees abusing their work time is also one of the issues that are faced by some companies. This abusing time theft leads to a loss in productivity, wasting work time and a potential decrease in profits for the company. The employees spend work time doing things that are unrelated to their jobs and are frequently late to work. They were also going places and wasting time in other departments talking with other staff or leaving without permission and delaying completing their work, and this makes the employer unable to locate where are their employees and even the company assets. There are times where the employees cannot remember or unable to locate and identify where is the company assets located.

### **1.3 Objective**

The main objective of this project is to design and develop a mobile application that can monitor and keep track of employees and company assets.

- To identify the hardware and software requirements to develop a monitoring system.
- To design and develop a system that able to locate the location of the assets of the company.
- To evaluate the functionality of the monitoring system using usability testing approach.

### **1.4 Scope and Limitation**

This proposed system is targeted to be used by employers anywhere and anytime with the support of the internet. By having this system, the employer can easily to monitor and keep track of the movement or location of employees and company assets. The system will be using real-time tracking to monitor employees and assets. This system shall be connected to the company database to extract the information of employees and assets. The system also allows the employee to track where is the company assets in the company compound. They can also view the information on the assets.

The limitation of this project is that the tracking system is limited only in the company compound. The system will only track and monitor the employees and assets that are in the company compound. It will not cover the area outside of the company compound.

## 1.5 Methodology

The method that will be using for this project is the Rapid Application Development (RAD) method. RAD is the adoption of the waterfall model and chosen because it minimizes the planning time and maximizing the prototype development time. There are 4 phases involved in the RAD method. The graphical representation of RAD phases is illustrating as in Figure 1.1.

Rapid Application Development (RAD)

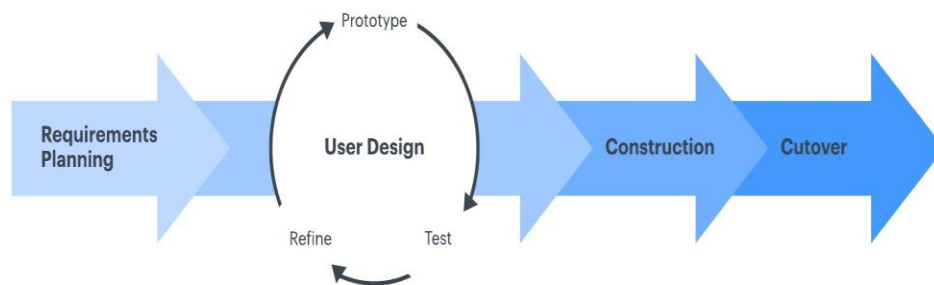


Figure 1.1: Rapid Application Development Methodology (Lucidchart, 2018)

The first stage is the requirements planning, and this is the initial stage of development, where a rough requirement planning takes place. The concept and scope of the project were identified from the paper research and information collected from the company. Requirement planning is the stage to determine what is the requirements needed, such as the hardware and software that will be used to develop this monitoring system. After doing some research, this system will be built on mobile application platforms such as Android Studio. A few requirements also collected by comparing the existing system that is related to the concept of this project. The next stage is the user design stage, where all the interface of the application is design based on the requirements collected in the planning stage.



The following process is to build a working prototype of the critical function of the system. This stage is repeated as regularly as essential as the project evolves. Next is the construction stage where all the coding applications, testing and integration take place. It will also be repeated as often as necessary as the project evolves. During testing, the process is also repeated to detect and identify any defects or errors that possibly made during the development process. Lastly is the cutover stage where the system goes to launch. The employer will be able to track and locate the employees and company assets in the company compound. The sensor will be able to sense and detect the Bluetooth devices that is own by the employees and attached to the assets. The system will be able to identify the check-in and check-out time of the employees and insert it into the database.

## **1.6 Significance of the project**

This project will help the employer to keep track of its employees and company asset. This project will be installed in a mobile phone, so it is easier for employers to monitor and keep track of their employees. However, when the employer is outside of the company compound, they can still monitor and track the employees and company assets. The mobile application allows the employer to view the information of employees and the company asset when they click on employees and assets. This application will be needing an internet connection as the employer will track the current location of employees and assets in real-time. Besides that, the employer also can check the check-in and check-out time of employees in the company compound to track their productivity.

## 1.7 Project Schedule

Task	Duration (Day)	Start Date	End Date
<b>Final Year Project 1</b>	<b>80</b>	<b>23/9/2019</b>	<b>12/12/2019</b>
Brief Project Proposal	6	23/9/2019	29/9/2019
<b>Project Proposal</b>	<b>20</b>	<b>29/9/2019</b>	<b>19/10/2019</b>
Research on project	8	29/9/2019	7/10/2019
Identifying objectives and project scopes	4	8/10/2019	12/10/2019
Determine methodology	8	12/10/2019	20/10/2019
<b>Chapter 1: Introduction</b>	<b>6</b>	<b>20/10/2019</b>	<b>26/10/2019</b>
Finalise project proposal	6	20/10/2019	26/10/2019
<b>Chapter 2: Literature Review</b>	<b>21</b>	<b>26/10/2019</b>	<b>16/11/2019</b>
Gathering journal and informations on existing system	13	26/10/2019	8/11/2019
Analysis information and documentations	8	8/11/2019	16/11/2019
<b>Chapter 3: Requirement Analysis and Design</b>	<b>18</b>	<b>17/11/2019</b>	<b>5/12/2019</b>
Collect all requirements	2	17/11/2019	19/11/2019
Create ERD and DFD	5	19/11/2019	24/11/2019
Basic design of system	11	24/11/2019	5/12/2019
<b>Final Year Project 1</b>	<b>7</b>	<b>5/12/2019</b>	<b>12/12/2019</b>

Figure 1.2: Milestone

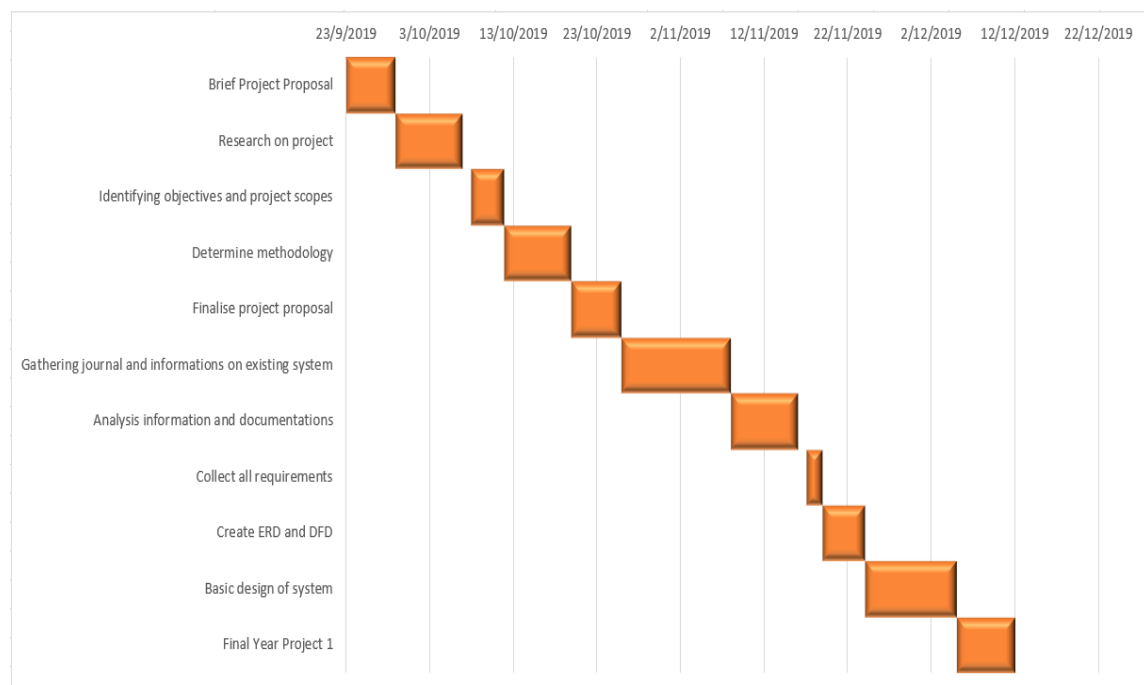


Figure 1.3: Gantt Chart

## **1.8 Expected Outcome**

At the end of this project, the outcome is expected to successfully create a responsive monitoring system application that helps the employer to locate employees and company assets. A mobile app that can function adequately to locate personnel real-time and keep track of location and the productivity of employees and assets of the company.

## **CHAPTER 2**

# **LITERATURE REVIEW**

### **2.1 Introduction**

Literature review is one of the crucial parts in the project research where research is done based on the selected area of study. It includes the review on existing system, the comparison between existing system and proposed system, details of the proposed system with justification, and lastly, produce an evaluation report.

### **2.2 Background Study**

As technology is enhancing, mobile-based application is getting more popular as smart-phone user is increasing. There are a lot of conventional system from various industry made effort to embed the system into mobile-based application. When employers hire new workers, they will need to find a way in order to be able to ensure the performance and productivity of employees can helps to increase the performance or profits of company. An employee monitoring system is a system that allows employers to monitor their employee's activities during work hours. The employers will have the rights to monitor their employees for better performance.

## **2.3 Review on Existing System**

In this section, there are five existing system that had been chosen to be reviewed. The system is Hubstaff, Timr, Labor Sync, GPS & Fleet and Teramind. All these systems have its own characteristic, advantages and disadvantages in the term of monitoring and tracking.

### **2.3.1 Hubstaff**

Hubstaff is a system that offers time tracking, GPS and location tracking, geofencing, app and URL tracking and activity monitoring. These features can be customized by the needs of employer of a company. Hubstaff has website and mobile apps for both Android and iOS, that allows the employer to monitor its employees even when they are not in the company compound or outstation. The employer can monitor and track the hours and location of its employee and assets with the GPS tracking.

Hubstaff monitoring website allows the employer to see the employee's internet usage whenever they are working and tracking time. The employer can track the time spent on every website and even can get a quick preview of how the page looks like. This can help the employer to know what the level of productivity of their employees is.

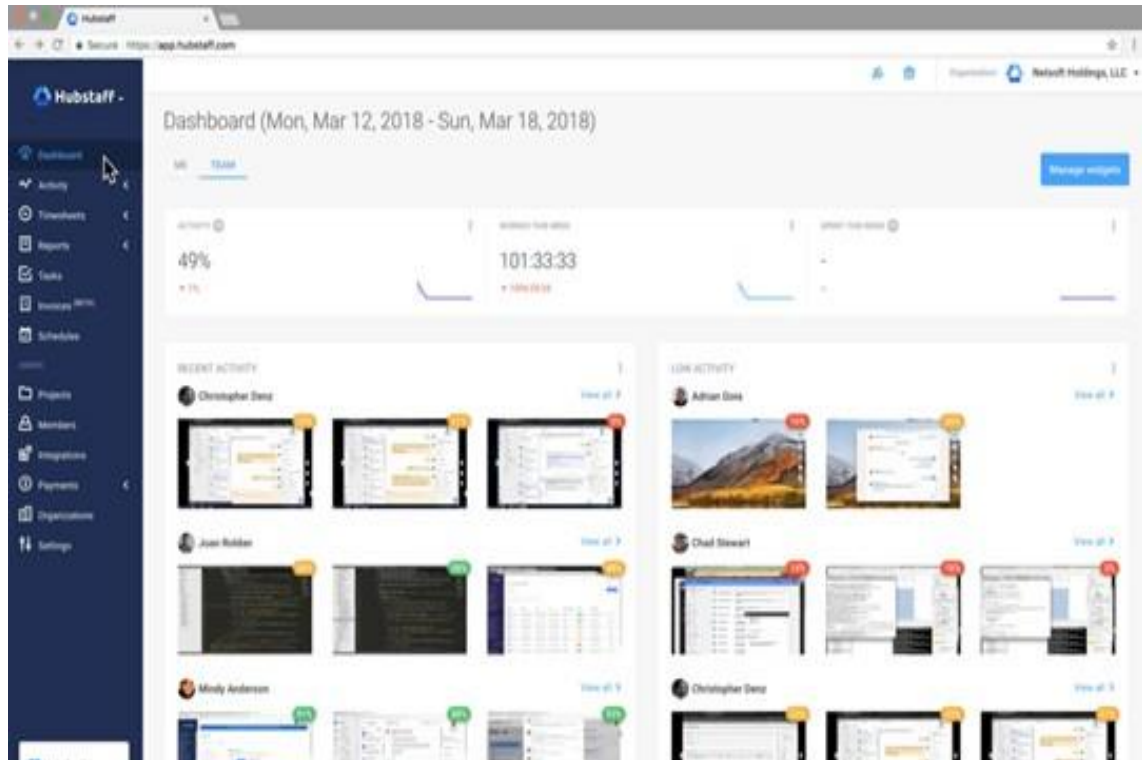


Figure 2.1: Main page of Hubstaff Dashboard

The dashboard has the quickest view in term of to see how the team members or employees works. The user can then choose to customize by going to the navigation panel on the right (manage widgets) and choose how they want to view data based on the needs at the time. The user can choose the time of the progress or activities of the employer, how many the time spent on certain work, how do the employers work etc.

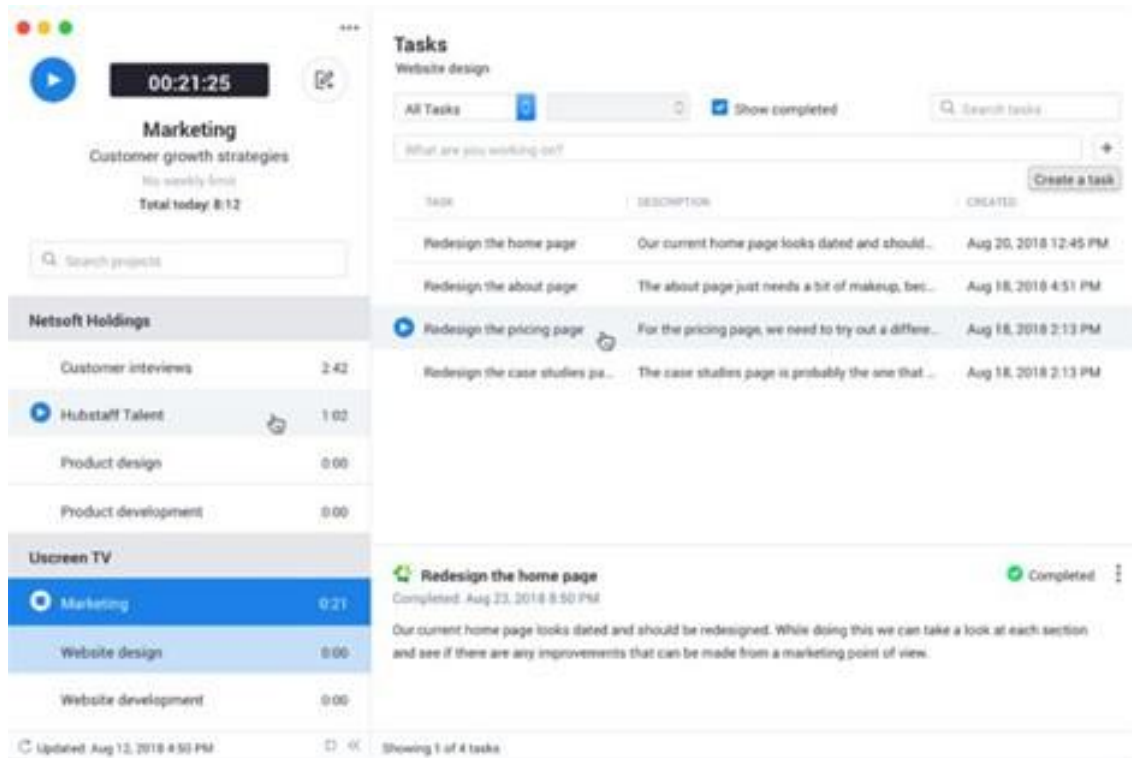


Figure 2.2: The time tracking page

The system can track time wherever and whenever the employees work using desktop and mobile apps. The time tracker generates the most accurate timesheet to easily track and invoice it. The GPS tracking record the time the employees is on the road and at work sites with mobile-base time tracking. The employees can clock in and out from anywhere if there is an internet coverage.

### 2.3.2 Timr

Timr mobile web app is a solution that allows user to easily tracking the time of each employee of a company. The system can track the absences of employees, vacations and it facilitates the creation of time sheets. Timr supports project time tracking that can be managed from its mobile web app. The web app features include managing task, time budgets and tracking the employees progress for each project. It allows the user to create reports and analyses information regarding time spend on each project.

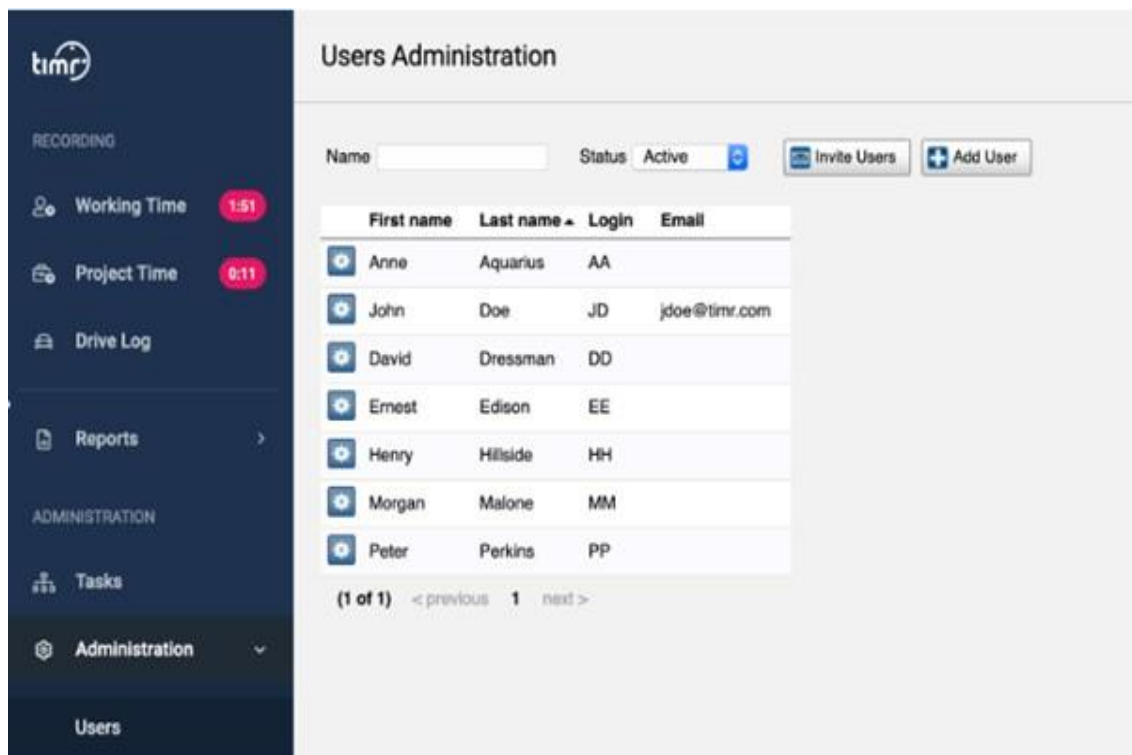


Figure 2.3: Dashboard of Timr system